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[4]

The Classical Theory of Wages and the Role of Demand Schedules in the Determination of Relative Prices

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My purpose in this paper will be twofold. First, I shall argue that the role of demand functions in determining prices depends on their role in determining distribution by means of the "relative scarcity" of the "factors of production." As a result, these functions would have no role in determining prices in the approach of Adam Smith and Ricardo who did not explain distribution in that way. These considerations will lay the ground for my second purpose: to distinguish between the notion of demand schedules for commodities and that of "effectual demand" in Smith and Ricardo, and to contend that the attempt to read in the classical authors as explanation of relative prices along the lines of modern theory is not well founded.

I. Demand and "Marginalist" Prices

The notion of demand schedule requires that the price-quantity relationship be determinate for all prices in the relevant range, and not only for the "natural" or "normal" price, which, however, is the only one that we may expect to experience under the non-accidental conditions that are likely to emerge through a repetition of the situation. We are therefore dealing with a much stricter notion than the immediately plausible one according to which an accidental fall in the quantity supplied below its normal level is likely to be accompanied by a rise in the price, and vice versa: in this notion no attempt would be made to determine the magnitude of such a rise, considered as depending on accidental factors.

This second, weaker notion (which, as I shall contend below, is that held by the classical authors) could not be represented by a curve in the familiar diagram: the prices corresponding to quantities below (above) the normal quantity q_n would be determinate only in that they are higher (lower) than the normal price p_n. If we wished to represent this notion in such a diagram, we would find *two areas*, North-West (NW) and South-East (SE) of the normal price-quantity point P, where NW indicates where the price is likely to be found when the quantity supplied has fallen accidentally short of q_n, and SE indicates where it is likely to be in the opposite case. To pass from this diagram to the familiar demand curve requires the assumption that the price-quantity relations falling into those two areas are as definite as they are at the normal point P. This, though formally tempting, cannot be done without a theory which allows us to determine those points.

The theory which has been advanced to that effect is the dominant one in its two aspects of: (*i*) asserting definite tastes for each consumer such that, given his income and any set of relative prices, the quantities of goods he demands are determined; (*ii*) ensuring individual income levels corresponding to the full employment of their productive services or, more generally, determinable simultaneously with the demand price of the commodity and undergoing comparatively small changes as the quantity supplied changes. (The demand function is based here on the general equilibrium system, but any "partial equilibrium" notion of it rests on its general equilibrium counterpart to which we should refer in order to ascertain its properties and adequacy.)

The same analysis ensures a persistence of the demand function sufficient to correct accidental deviations from it through repetition over time. Such persistence will in fact be that of individual tastes and of the other data of the system.

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It is, on the other hand, generally recognized that the same theory allows us to conclude that the demand functions will generally show a negative price-quantity relation, and thus to argue for the uniqueness and stability of the equilibrium concerned. This negative relation, I should note, requires a specific ordering between *each* price-quantity point. Even more importantly, the theory does not regard these points as results of accidental and temporary deviations of the quantity supplied from the "normal" level, but rather as determinate points likely to emerge from a repetition of the event.

If the notion of the demand function for a product depends upon the dominant theories for its rational basis, its role in determining the relative prices of the products depends on the idea, which is characteristic of these theories, that the distribution of the social product is determined by an "equilibrium" between the "demand and supply" of the services of factors of production.

In fact, let us assume, as is generally done in these theories, that constant returns to scale prevail in each industry. Let us also assume, at first, that land is free. It follows that, given the real wage, or, alternatively, the rate of profit (interest), the relative prices of all products will be determined *independently* of any demand functions. Thus the demand functions can enter into the determination of the prices of products only to the extent to which they enter into the determination of the division of the product between wages and profits. And the demand functions for products do enter the determination of distribution in modern theory, because the decreasing demand functions for services of factors are derived from them, as well as from the conditions of technical substitution.

This conclusion, according to which a demand schedule can only affect the price of the corresponding product to the extent to which it affects distribution, might at first puzzle the reader used to thinking in terms of the intersection of the demand and supply curves of the product in question. It is evident, however, that the demand curve of a product can affect its price only if the supply curve is nonhorizontal. Now, under the assumption of constant returns to scale, the supply curve will have a rising slope because the expansion of output will generally render the factors used in relatively higher proportions for the product in question more costly. Indeed the nonhorizontality of the supply curve is the *expression* of the extent to which the quantity produced, and hence the demand conditions of the commodity, affect distribution. The same nonhorizontality is, on the other hand, the *agency* through which this effect on distribution makes itself felt on the price of the commodity.

This role of consumer choice in determining prices seems, at times, to be imperfectly grasped in the literature. An example is perhaps provided by the sense of novelty that the "nonsubstitution theorems" have aroused. Thus, to take the most significant of these theorems, Paul Samuelson (1961, p. 528) found that in an economy where production requires only labor and capital goods, "a stipulated change in the pattern of demand for end-goods" will affect neither the relative prices of such goods nor the methods of production in use, once the rate of interest (profit) is given. This proposition would have seemed less novel had it been clear that the pattern of demand can only affect relative prices "through its influence on income distribution."

II. Demand and "Classical" Prices

When this role of demand functions in the determination of the prices of products is understood, it should become clear why they are not to be found in Adam Smith and Ricardo, who had a different theory of distribution. These authors envisaged the real wage as dependent, essentially, on institutional factors, together with the conditions affecting what might perhaps be summed up as the relative bargaining position of workers and employers.

Thus Adam Smith attributed a central role to the notion of a culturally determined level of subsistence (*Wealth*, II, pp. 351–52) and held that the tendency towards such a level was largely explained by the "advantage" which masters have in disputes over wages, both because they are always "in a sort of tacit, but constant and uniform combination,

not to raise the wages of labour" and because in case of dispute they can "hold out much longer" (*Wealth*, I, p. 59). Ricardo, for his part, also focused his explanation of the real wage on a notion of subsistence which, determined by historical no less than by biological factors, was in the given conditions the minimum acceptable by workers for any length of time. For the tendency of the "market" wage towards such a "natural" level, Ricardo, influenced by Malthus, relied on changes in population, which Smith had also considered, though more flexibly than Ricardo. Ricardo's own position was however far from rigid: he freely admitted that "with better education and improved habits" the natural wage could itself rise (compare, for example, Ricardo's spirited reaction to Malthus in *Works*, II, p. 115).

It seems therefore that what characterized these authors was not the idea of a wage determined by subsistence, even less that of a subsistence constant over time. It was, more generally, the importance attributed, in the determination of the real wage, to elements which were best studied before and independently of the determination of relative prices and of the other shares in total product. This *separate determination* found expression in the fact that these authors took the real wage as given when approaching the determination of relative prices. This in turn implied that the price system and the rate of profit could be determined independently of any demand functions for the products.

An interpretation of Adam Smith and Ricardo as "modern economists trying to be born," holding, that is, a demand and supply analysis of wages while seeking to say something "significant and limiting about their properties" (p. 1415), has been advanced by Samuelson (1978) with his "canonical classical model." According to it, Smith and Ricardo would have determined the "equilibrium" real wage as that balancing the growth of the supply of labor with that of its demand, resulting from accumulation (p. 1416). The "demand" for labor of this interpretation would be rigid, implying, as Samuelson notices (p. 1423), either zero wages or zero profits or an indeterminate breakdown between wages and profits—which would be limiting indeed for "modern economists." But, above all, this interpretation and, particularly, the relation between the real wage and growth of population on which it is based, seems to suffer from the tendency to see functional relations of known general properties where the classical economists saw relations too complex and variable to be quantified in any exact way. Thus Smith wrote that "the liberal reward of labor," by enabling workers to provide for their children, tends to increase population (*Wealth*, I, p. 71), but he also brought out elements which went in the opposite direction (see, for example, *Wealth*, II, p. 353), or could go in either direction (*Wealth*, I, pp. 62–63) (on this see also Joseph Spengler, 1959, p. 7). I have already mentioned the flexibility of Ricardo's position on this matter.

It might be objected that my argument concerning the classical economists has so far rested on the assumption of constant returns to scale to labor and capital and that, when this assumption is abandoned, a second route emerges through which outputs and hence, presumably, demand functions, may affect prices even when the real wage is given.

What this objection presumes is that demand functions must be introduced to determine outputs even when distribution is otherwise determined. We may here lay aside the difficulties of envisaging these functions in a classical setting (compare my earlier discussion on the determination of consumer incomes). It is the usefulness of this procedure which is questionable in the first place. As noted above, the modern analysis of demand is in fact mainly concerned with some *formal properties* of consumer tastes, specifically with the determinateness, persistence, and slope of the demand curves, and *not* with the actual *content* of these tastes (which is generally left to the sociologist or psychologist). This content, jointly with the levels of activity, distribution and techniques, is however, what determines the *position* of the demand curve and is thus the main influence on the levels of output. Now, those formal properties, basic as they are for the modern supply-and-demand analysis of distribution,

were largely irrelevant for the classical economists with their different theory. It was therefore natural that these authors should, so to speak, face the content of consumer tastes *directly*, without the intermediate screen of any formal properties, whether in order to take it as given (as is generally done in modern theory) or in order to examine it, as they generally did (for example, in connection with workers' "necessaries"). In either case, the procedure was to take this content as given *when determining* the system of relative prices—leaving it for a separate analysis, like that to be conducted for the other determinants of output (real wages, levels of activity, and techniques). The very levels of output could then be taken as given in just the same way as the real wage was taken as given.

The analysis of changes in outputs and prices was thus conducted by the classical economists in what we may describe as two distinct logical stages: (*i*) the effect on relative prices of the change in real wages, or techniques, or outputs was examined with outputs as independent variables; (*ii*) the possible effects on outputs of the change in relative prices were then analyzed in accordance with the circumstances of the case under consideration, jointly with any possible further effects on prices and distribution due to nonconstant returns to scale.[1] With this the classical economists distinguished between field of analysis (*i*), where necessary quantitative relations could be found between rates of remuneration, and between these rates and relative prices, and other fields where no such necessary relations could be established, and where actual relations had to be studied in their multiplicity and diversity according to circumstances. This procedure by separate logical stages is in fact nothing new, even for modern theory: it will, for example, be generally admitted that technical changes will generally affect consumers' tastes, but any such effect will be considered, if at all, at a stage which is logically distinct from the determination of distribution and prices, where consumers' tastes and technical conditions of production appear as data. It remains, however, true that the procedure of the classical economists renounces what was attempted by later theory, namely, a simultaneous treatment of the interrelations between most economic phenomena. This modesty of goals may however be the most appropriate one in a subject as complex as economics where, as Marshall reminds us, "the function...of analysis and deduction...is not to forge a few long chains of reasoning, but to forge rightly many short chains" (*Principles*, Appendix C; 3; p. 773).

[1]As for the dependence of prices on outputs in the case of jointly produced commodities, the relative scarcity of these commodities will tend to find an objective expression in the co-existence of processes producing the same commodities (compare Sraffa, p. 43).

III. The Classical Notion of "Effectual Demand"

In Adam Smith and Ricardo we find the notion of "effectual demand," defined as "the demand of those who are willing to pay the natural price of the commodity" (*Wealth*, Bk. I, ch. VII, I, p. 49). The analysis above should make it easy to see the difference between this notion and that of demand schedule. The role of effectual demand is to explain the tendency of the actual or "market" price toward the normal price and not that of determining the latter. It does not therefore consist of a curve but of a single determinate price-quantity point. Apart from this single point, Smith needs only to suppose that when the quantity supplied falls short of effectual demand, the actual or market price will exceed the natural price, thus setting in motion forces which tend to raise the quantity supplied and bring the market price down to the natural level (and vice versa).

This classical notion of demand, which was consistent with the theoretical framework of which it was an integral part, has however been often envisaged as a rudimentary expression of the modern notion of demand function. Marshall showed the way. In his *Principles* he refers to the "market" price—defined by Smith and Ricardo as the *actual* price, accidental in its absolute level and determinate only in its *order* relative to the natural price— as a "temporary equilibrium" price (see, for example, Marshall, *Principles*, Bk. V, ch. V, 8; I, pp. 378–79; also p. VII). With this he attributed to Smith

a *demand curve*, determinate also at points (like that of the "equilibrium" market price) other than the effectual demand point. After this first step, it was easy for Marshall to proceed and argue that the distinction between market and normal price was only one of degree, relating to the period of time over which the equilibriating process was supposed to occur, thus implicitly attributing to Smith and Ricardo also a demand-and-supply determination of the normal price (on this point, see Krishna Bharadwaj, pp. 264–65).

If, in Smith's case, the shortcomings of this interpretation could pass almost unnoticed, it was inevitable that they should crop up in the case of the more consistent version of the theory provided by Ricardo. In particular, it seemed clear that Ricardo determined prices independently of anything resembling demand schedules.

As is well known, Marshall attempted to cope with this difficulty by contending that Ricardo could avoid referring to demand and utility only by assuming what Marshall characterized as the "law of constant return," by which in the first place he meant a horizontal long-period supply curve for the industry in question (*Principles*, p. 671). Marshall here overlooks or leaves aside the fact that the dependence of prices on demand functions is based on distribution and not on the laws of returns to scale to capital and labor—to which he might also be taken to refer with his "laws of return." Indeed Ricardo could have deduced a constant supply price from constant returns to scale to capital and labor only to the extent that he was not explaining the distribution of wages and profits in Marshall's way. The incorrectness of Marshall's interpretation is, on the other hand, evident from the fact that in agriculture, where clearly Ricardo did not assume "constant return" in either sense, he did not introduce demand functions any more than he had done for manufacturing.

Gerald Shove took up this argument, but was more cautious than Marshall in attributing demand functions to Ricardo. He perceived that a "step" was involved in passing from Ricardo's discussion of the "market" price to a demand function (p. 301) and saw a dilemma in Ricardo's theory of value: either introducing demand functions or remaining confined to the special case of constant supply price (p. 297). This unreal dilemma has recently been revived by S. C. Rankin who claims, p. 251, that, in Ricardo, *demand functions* do enter the determination of prices: his evidence is, however, that Ricardo has agricultural prices dependent on "demand," by which Ricardo meant "effectual demand," as is clear in the passages quoted by Rankin.

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